SUMMARY

Reconsideration of the application is respectfully requested.

Claims 1-84 are in the application and were rejected in the above-identified Office Action. Claims 12, 13, 18, 19, 30, 36, 38, 42, and 55 have been amended.

Applicants appreciatively acknowledge the Examiner's consideration and acceptance of the information disclosure statements (IDS) submitted on November 18, 2002 and April 3, 2003.

CLAIM CORRECTIONS

Applicant has amended claims 36 and 55, because of typographical errors. The above-noted changes to the claims are provided solely for clarification or cosmetic reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

CLAIM REJECTIONS UNDER 35 U.S.C. § 101

In "Claim Rejections – 35 USC § 101" item 2 on page 2 of the above-identified Office Action, claims 12-19 and 30-42 have been rejected as being directed to non-statutory subject matter. The Examiner's suggested correction has been made.

No new matter is believed to be introduced by the amendment to claims 12, 13, 18, 19, 30, 38 and 42. Support for the amendments may be found, among other places, on page 6, lines 13 and 23 of the specification, in the figures, and in the claims.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103

In "Claim Rejections – 35 USC § 103" item 5 on page 3 of the above-identified Office Action, claims 1, 2, 10, 30-32, 35, 36, 38, 39, 41-44, 52, 72-74, 77, 78, 80, 81, 83, and

SEA/109870/130103/KHF/334710.1

84 have been rejected as being unpatentable over U.S. Patent No. 6,253,252 to *Schofield* (hereinafter **SCHOFIELD**) under 35 USC § 103(a).

In "Claim Rejections – 35 USC § 103" item 28 on page 9 of the above-identified Office Action, claims 3-8, 11, 45-50, and 53 are rejected as being unpatentable over **SCHOFIELD** in view of U.S. Patent No. 6,230,160 to *Chan, et al.* (hereinafter **CHAN**) under 35 USC § 103(a).

In "Claim Rejections – 35 USC § 103" item 37 on page 11 of the above-identified Office Action, claims 9 and 51 are rejected as being unpatentable over **SCHOFIELD** in view of **CHAN** and further in view of U.S. Patent No. 6,209,018 to *Ben-Shachar, et al.* (hereinafter **BEN-SHACHAR**) under 35 USC § 103(a).

In "Claim Rejections – 35 USC § 103" item 41 on page 12, claims 12-23, 33-34, 37, 40, 54-65, 75, 76, 79, and 82 are rejected as being unpatentable over **SCHOFIELD** in view of U.S. Patent Application Publication No. 2002/0099738 to *Grant* (hereinafter **GRANT**) under 35 U.S.C. 103(a).

In "Claim Rejections – 35 USC § 103" item 65 on page 19, claims 24-29 and 66-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over **SCHOFIELD** in view of **GRANT** and further in view of **CHAN** under 35 U.S.C. 103(a).

Applicants appreciately acknowledge the indication in item 6 on page 3 that **SCHOFIELD** was cited by the applicants in the IDS filed 11/21/02. This is due to the fact that although **SCHOFIELD** is relevent to the instant application, in so far as **SCHOFIELD** speaks to the use of asynchronous objects in a web environment, the present invention as disclosed is patentably distinct from **SCHOFIELD**. Namely, **SCHOFIELD** is directed towards **asynchronous calling and implementing objects,** while the instant application is focused on an **annotation based development platform** for asynchronous web. Thus, **SCHOFIELD** is focused on the use and exploitation of the asynchronous web, which occurs

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Application No. 10/082,807   - 23 -   Attorney Docket No. 109870-130103
Confirmation No. 2054   IPG No. P012

SEA/109870/130103/KHF/334710.1

after the instant application that is directed towards **the integrated development and deployment** of asynchronous Web services. More specifically, the instant application indicates in the last paragraph on page 5 that the present invention "simplifies the task of developing ... asynchronous web services by allowing web service developers to focus on developing the logic of the web service rather than implementation and deployment particulars." **SCHOFIELD** speaks to the use of the asynchronous web services after development and deployment. Thus, while not rising to the level of non-analogous art, the Examiner should clearly consider the different developmental context with which the disclosures in **SCHOFIELD** are made.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Claim 1 calls for, *inter alia*, a method of specifying an asynchronous web service within a procedural programming environment including:

> **providing a source code representation** of at least a portion of web
> > service logic, the logic including at least one method declared to be
> > a callback method; and

> identifying **a member variable** declared **to implement** said callback
> > method **to cause a compiler to generate** a client proxy object for
> > interacting asynchronously with the client using said callback
> > method, and to assign the client proxy object to said member
> > variable.

Independent claims 10, 20, 43, 52, and 62 include similar language.

> Claim 12 calls for, *inter alia*, a method in an asynchronous web service including
> > receiving on one or more computing devices a message from a client
> > > requesting that a web service method be invoked;
> > **parsing** on one or more computing devices the message **to identify the**
> > > **requested web service method** in addition to a callback address

indicating a location where the client is listening for callbacks from the web service;

storing on one or more computing devices **the callback address in association with a previously generated proxy object**; and

invoking on one or more computing devices the requested web service method.

Independent claim 54 includes similar language.

Claim 30 calls for, *inter alia*, a method including

generating on one or more computing devices a request to an external web service using a proxy object **previously generated by a compiler based upon a service description file associated with the external web service**, wherein the request includes a callback address to identify a location to which the external web service should return a response;

transmitting on one or more computing devices the request as a request message to the external web service using one or more transmission protocols; and

receiving on one or more computing devices **an asynchronous response** from the external web service.

Independent claim 72 includes similar langugae

Claim 38 calls for, *inter alia*, a method including

receiving a message identifying a callback address, a callback method and a proxy object identifier;

extracting the proxy object identifier from the message;

determining a method to be invoked based at least in part upon the proxy object identifier and the callback method; and

SEA/109870/130103/KHF/334710.1

routing the request to the method to be invoked.

Independent claim 80 includes similar language.

The **SCHOFIELD** reference is cited in every rejection under 35 USC § 103(a) and discloses performing asynchronous object calls (Col. 3, line 46) and performing non-threaded asynchronous object implementation (Col. 3, lines 48-49). Asynchronous object calls are performed in **SCHOFIELD** "by calling a stub function from a client application." The stub function of **SCHOFIELD** receives input parameters and a pointer to a completion routine from the stub function. The server associates object calls in **SCHOFIELD** with a call identifier. If called from the server application, both the call identifer and the address to a response function to the asynchronous method.

More specifically, **SCHOFIELD** teaches using code generator 111 to generate files in the language of the client and server applications. However, the use of the code generator is limited to its use in calling and implementing objects. The code generator 111 of **SCHOFIELD** does not begin with "**a source code representation**" as recited in claim 1 of the instant application. In many asynchronous sytems a code generator similar to the one described in **SCHOFIELD** is used to maintain the communication by calling and implementing objects, but this use of the generator only occurs after the initial development by the developer during the development and deployment stage. In contrast, the instant application allows the developer to begin with "a source code representation" as recited in claim 1 of the instant application.

Applicants agree with the Examiner that **SCHOFIELD** "does not explicitly teach" or suggest "**a member variable** ... to implement said callback method to cause a compiler to generate a client proxy object" as recited in claim 1 of the instant application. However, the applicants respectfully disagree that the use of "a member variable" as claimed would "have been obvious to one of ordinary skill in the art" as the ascribed functionality only occurred

SEA/109870/130103/KHF/334710.1

after the initial development and deployment had already occurred. In other words, the developers had already been forced to do the extra work not associated with the web service.

The use of the asynchronous web in **SCHOFIELD** occurs after the deployment discussed in the instant application. The described "use and exploitation" of the asynchronous web by **SCHOFIELD** does not consitute **development and deployment** of asynchronous Web services as recited in the claims of the instant application. As indicated in the "Background of the Invention" section on page 2 of the instant application, developers needing to generate and deploy the most basic of web services are currently required to implement one or more mechanisms for:

> Sending and receiving data via internet protocols; parsing and generating message bodies and headers packaged using protocols such as the Simple Object Access Protocol (SOAP); controlling access to services in a secure way; mapping data between XML messages and internal data structures within the web service logic; transacting operations so they are reliable and predictable; decoupling temporal dependencies so distributed applications can proceed reliably when external services are down or unavailable; decoupling implementation dependencies so distributed applications can proceed predictably when external services change their underlying implementations; developing service descriptions e.g. using the Web Services Description Language (WSDL) and using external web services described by e.g. WSDL; developing proxy objects that make it easy for client software written in a variety of languages to interact with the service and for the service to interact with other external services; and so forth.

Therefore, implementations of asynchronous web services prior to the instant application, such as those described in **SCHOFIELD**, were required to consider at least some of these nine implementation mechanisms. While the applicants are not denying that the items discussed above were already being done by developers prior to the instant application, it is the fact that the developers were having to do these things at all that actually gives rise to the present invention. Previously, developers in **SCHOFIELD** would be required to focus on implementation and deployment aspects associated with the creation of the code generator 111 in **SCHOFIELD**, but completely unrelated to the desired web service logic. The present

invention enables the developers to avoid unnecessary involvement with asynchronous mechanisms.

Clearly, **SCHOFIELD** does not show a "**source code representation**" as recited in claim 1 of the instant application. Nor does **SCHOFIELD** teach or suggest the use of a "**member variable** ... to implement said callback method to cause a compiler to generate a client proxy object" as recited in claim 1 of the instant application. Similar language is included in independent claims 10, 20, 43, 52, and 62.

Moreover, **SCHOFIELD** does not show "using a proxy object **previously generated by a compiler based upon a service description file associated with the external web service**" as recited in claim 30 of the instant application. Nor does **SCHOFIELD** teach or suggest the use of a callback address associated with a "**previously generated proxy object**" as recited in claim 12 of the instant application. Similar language is included in independent claims 72 and 54, respectively.

Furthermore, **SCHOFIELD** does not teach "identifying a callback address, a callback method and a proxy object identifier" as recited in claim 38. Similar language is included in independent claim 80.

The applicable teachings available to one of skill in art via **CHAN, BEN-SHACHAR,** and **GRANT** do not make up for the previously indiciated deficiencies of **SCHOFIELD.**

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 10, 12, 20, 30, 38, 43, 52, 54, 62, 72, or 80. Claim s 1, 10, 12, 20, 30, 38, 43, 52, 54, 62, 72, and 80 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claims s 1, 10, 12, 20, 30, 38, 43, 52, 54, 62, 72, or 80.

In the event the Examiner should still find any of the remaining claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

Petition for extension is herewith made. The extension fee for response within a period of one month pursuant to Section 1.136(a) in the amount of $120.00 in accordance with Section 1.17 is enclosed herewith. If any additional extension of time is required, petition for extension is herewith made.
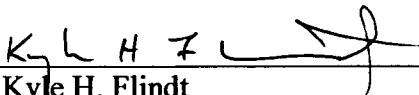
CONCLUSION

In view of the foregoing, reconsideration and allowance of claims 1-84 are solicited. As a result of the amendments made herein, Applicant submits that claims 1-84 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present paper, the Examiner is kindly requested to contact the undersigned at (206) 407-1509. If any fees are due in connection with filing this paper, the Commissioner is authorized to charge the Deposit Account of Schwabe, Williamson and Wyatt, P.C., No. 50-0393.

Respectfully submitted,
SCHWABE, WILLIAMSON & WYATT, P.C.

Date: Monday, May 16, 2005   by: _K_ L H 7 _____
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